

# PLECS WORKSHOP

Advanced Modeling and Simulation of Power Electronic Systems  
Hochschule Darmstadt, March 28, 2017

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08:30	<b>Registration</b>
09:00	<b>Introduction to PLECS</b> <ul style="list-style-type: none"><li>▶ General use of PLECS Blockset and PLECS Standalone</li><li>▶ Instantaneous switching</li><li>▶ Variable and fixed-step operation</li></ul> Exercise: Modeling a switched-mode power supply
10:00	<b>Break</b>
10:30	<b>Solver Settings</b> <ul style="list-style-type: none"><li>▶ Definition of stiff and non-stiff systems</li><li>▶ Explicit and non-explicit solvers</li><li>▶ Stability domains</li><li>▶ Accuracy considerations, step size control</li><li>▶ Proper handling of discontinuities, zero-crossing detection</li></ul> Exercise: Solver accuracy and settings
12:00	<b>Lunch</b>
13:00	<b>Introduction to Thermal, Magnetic &amp; Mechanic Modeling &amp; Simulation</b> <ul style="list-style-type: none"><li>▶ Switching &amp; conduction loss descriptions</li><li>▶ Combined electrical-thermal simulation</li><li>▶ Permeance Capacitance Analogy Model</li></ul> Exercise: Thermal modeling of a buck converter
14:30	<b>Break</b>
15:00	<b>Overview of PLECS Tools</b> <ul style="list-style-type: none"><li>▶ AC Sweep and Impulse Response Analysis Tools</li><li>▶ Steady State Analysis Tool</li><li>▶ Implementing custom components</li></ul> Exercise: Creating a custom PV string component
16:00	<b>End of day</b>
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Location	<b>Hochschule Darmstadt, Schöfferstrasse 3, Gebäude C10, Raum 4.01, 64295 Darmstadt, Deutschland</b>